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EXAMINER	
LAZORCIK, JASON L	

ART UNIT	PAPER NUMBER
1791	

NOTIFICATION DATE	DELIVERY MODE
12/11/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	**Application No.** 10/677,087	**Applicant(s)** TUDRYN ET AL.	
	Examiner JASON L. LAZORCIK	**Art Unit** 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 17 August 2009.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1,3,5-17,19,20 and 24 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1, 3, 5-17, 19-20, and 24 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of the Claims

Applicants reply dated August 17, 2009 amends claims 1, 9 , and 17, cancels claims 4, 22, 23, and adds new claim 24.

In view of the instant reply, claims 2, 4, 18, and 21-23 stand as having been cancelled by Applicant and no claims have been withdrawn from consideration. Therefore, Claim 1, 3, 5-17, 19-20, and 24 are pending for prosecution on the merits.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 17 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In the instant case, the specification as originally filed provides substantially no support for the recited step wherein "the voltage is applied between the glass layer and the package through electrical contacts in direct contact with each of the glass layer and the material having an elastic modulus greater than about 300 gigaPascals" .

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1,3, 10, 16, 19, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goesele (US 5,877,070) in view of Lee et. al. (Electrochemical Society Proceedings, Volume 97-36; Semiconductor Wafer Bonding: Science, Technology, and Applications IV, (1998) pp.200-204)

As noted in the previous Official Action, Goesele teaches a method for anodically bonding a silicon carbide substrate to a glass substrate (see col. 12, lines 6-24). The Examiner construes the disclosed bonding process to read directly upon the recited method of providing a first layer comprising glass and a first substrate comprising a material having an elastic modulus greater than about 300 gigaPascals.

Where the first substrate is a glass substrate and the second substrate is a silicon carbide substrate, the Examiner construes the disclosed anodic bonding process to read upon the recited step of applying a voltage between the first layer and the first substrate through electrical contacts "in direct contact with each of the first layer and the material having an elastic modulus greater than about 300 gigaPascals". Alternately, one having a routine level of skill in the art of anodic bonding would have found it obvious to perform the disclosed anodic bonding process through direct electrical contacts to each of the first substrate and first layer (see for Example the figure 1 excerpt presented on Page 6 of the Official Action dated March 16, 2009).

Although the above referenced example employs a single crystal silicon carbide substrate, Goesele explicitly notes that the disclosed process is applicable to the transfer of a polycrystalline thin layer (see col. 4, lines 1-3)

(I) Goesele is silent regarding the RMS surface roughness of the first substrate

As noted above, Goesele teaches essentially every limitation of the recited method for bonding substrates. The reference is however silent regarding the requisite surface roughness values for achieving a successful anodic bond between the substrates as recited in claim 1, lines 6-7.

(II) The recited surface roughness is obvious in view of Lee

Lee teaches a closely related method for bonding silicon carbide substrates to glass substrates (see page 201, first paragraph and Page 203, § Process Considerations). Regarding the surface roughness of the silicon carbide wafer, Lee teaches that the RMS roughness of the silicon carbide wafer is reduced to approximately 20 angstroms (e.g. 2 nanometers) prior to performing the anodic bonding procedure.

In view of the Lee reference, it would have been obvious to provide for a surface roughness in the silicon carbide “first substrate” of between 1 nm and about 200nm in the Goesele bonding process since Lee demonstrates that such roughness values have been effectively employed to anodically bond silicon carbide to glass in an analogous process.

Regarding **Claim 3**, see rejection of claim 1 above.

Regarding **Claim 10**, see Lee Page 203, § Process Considerations

Claim 16 is drawn to a device made by the process set forth for the method for anodic bonding as outlined in Claim 1. As such, Claim 16 amounts to a product-by-process claim for the processes set forth in Claim 1.

In the event any differences can be shown for the product-by-process claim 16, as opposed to the product taught by the Goesele-Lee process, such differences would have been obvious to one of ordinary skill in the art as routine modification of the product in the absence of a showing of unexpected results, see In re Thorpe, 227 USPQ 964 (CAFC 1985). As the afore mentioned claim is a product by process claim, it is deemed that “[A]ny difference imparted by the product by process claims would have been obvious to one having ordinary skill in the art at the time the invention was made because where the examiner has found a substantially similar product as in the applied prior art the burden of proof is shifted to the applicants to establish that their product is patentably distinct, …"In re Brown, 173 USPQ 685, and In re Fessmann, 180 USPQ 324. Further, "[P]rocess limitations are significant only to the extent that they distinguish the claimed product over the prior art product." In re Luck, 177 USPQ 523 (1973).

Claims 5-7, 11, 17, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goesele (US 5,877,070) and Lee et. al. (Electrochemical Society Proceedings, Volume 97-36; Semiconductor Wafer Bonding: Science, Technology, and Applications IV, (1998) pp.200-204) as applied to claim 1 above, and further in view of Berthold et. al. (Sensors and Actuators 82, 224–228,(2000)) in view of Fukushima (PCT/JP03/00570).

(III) Goesele and Lee are silent regarding the composition of the glass substrate or the anodic bonding conditions as recited in the claimed invention.

As noted above, Goesele and Lee teach every feature of Applicants claimed anodic bonding method including the steps of bonding a silicon carbide substrate (e.g. a material having an elastic modulus greater than about 300 gigaPascals) to a glass substrate. The references are however silent regarding composition of glass as recited in pending claims 5 and 6 or the temperature and voltage conditions utilized in the anodic bonding procedure as recited in claims 7 and 11.

(IV) Applicants recited glass composition and anodic bonding conditions are obvious in view of Berthold

The reference to Berthold teaches a method for bonding an epitaxially formed layer of polycrystalline silicon carbide to a glass substrate.

Regarding **Claims 5 and 6**, Berthold explicitly indicates that Pyrex 7740, a borosilicate glass composition (see provides an effective anodic bond to the silicon carbide material. Where Berthold demonstrates that Pyrex 7740 borosilicate glass forms a successful bond to silicon carbide by anodic bonding, one of ordinary skill in the art would have found it obvious to try Pyrex 7740 as the glass composition in the Goesele disclosed glass-silicon carbide anodic bonding process.

Regarding **Claims 7 and 11**, Berthold teaches (Pg 224, ¶2) that bonding "temperatures not exceeding 400°C" or not exceeding *about* 350°C [**Claim 7**] and "voltages of around 700V have resulted in successful bonding" [**Claim 11**] are effective to produce an anodic bond between silicon carbide and Pyrex 7740 glass. Thus, in view of the Berthold reference, it would have been obvious for one of ordinary skill to try the Berthold disclosed anodic bonding condition when using Pyrex7740 glass as the glass composition in the Goesele process.

Claims17 and 24 are obvious over the prior art as applied to claims 1, 5, 6, and 7 above.

Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goesele (US 5,877,070) and Lee et. al. (Electrochemical Society Proceedings, Volume 97-36; Semiconductor Wafer Bonding: Science, Technology, and

Applications IV, (1998) pp.200-204) as applied to claim 1 above, and further in view of Fukushima (PCT/JP03/00570).

(V) The prior art of record is silent regarding the recited RMS surface roughness values

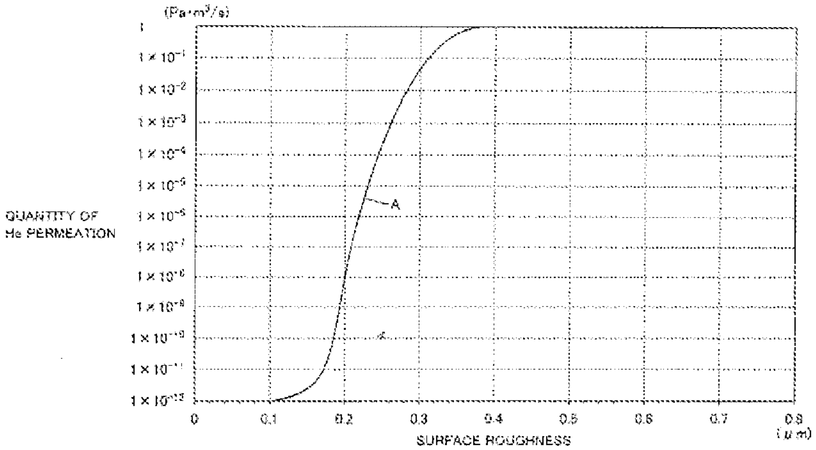
As noted above, Goesele teaches essentially every limitation of the recited method for bonding substrates. Lee teaches that an effective anodic bond may be achieved at the RMS tolerance of 20 angstroms. The references are however silent regarding the surface roughness values for as recited in claims 8-9

(VI) The surface roughness of the substrates are result effective variables as evidenced by Fukushima (PCT/JP03/00570) and obvious in view of the ordinary level of skill in the art at the time of the invention

As noted more fully in the Official Action dated March 16, 2009, Fukushima establishes the substrate surface roughness as a result effective value in an anodic bonding process.

Specifically, Fukushima teaches a method of forming a hermetic seal between two materials by anodic bonding. In the excerpt Figure 1 below, Fukushima lays out the relationship between the quantity of He Permeation or the quality of the hermetic seal as a function of surface roughness.

FIG.1



“[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.”; see In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation (See In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) and In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977)). In the instant case, Fukushima exposes a positive relationship between a decrease in the surface roughness and a corresponding increase in quality of an anodically bonded seal for surface roughness values in the range from 100nm to 400 nm. Therefore surface roughness is deemed a result-effective variable of anodic bonding process.

Absent compelling evidence to the contrary, it is the Examiners assessment in view of the Fukushima disclosure that one having a normal level of skill in the art at the time of the invention would have derived Applicants recited RMS surface roughness values through no more than routine experimentation and optimization of the Goesele disclosed anodic bonding process.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goesele (US 5,877,070) and Lee et. al. (Electrochemical Society Proceedings, Volume 97-36; Semiconductor Wafer Bonding: Science, Technology, and Applications IV, (1998) pp.200-204) as applied to claim 1 above in further view of Cozma et. al. (J. Miromech. Microeng. 5 (1995) 98-102), Lee et. al. (Sensors and Actuators 86 (2000) 103-107), and the ordinary level of skill in the art at the time of the invention.

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Goesele and Lee are silent regarding the limitation where the surface of the first substrate is caused to be hydrophobic as recited in pending claim 12.

With respect to electrostatic or anodic wafer bonding processes in general, Cozma teaches that it is generally known that interfacial characteristics play an important role in the quality of the bond resulting from an anodic bonding process. The reference teaches that surfaces to be joined may be preliminarily subject to acid treatment or to dipping in a buffered HF solution which “removes the native oxide and leaves the surface hydrophobic”. Cozma concludes by noting that at temperatures above 400oC, strong bonds may be formed during anodic bonding hydrogen desorption of the hydrophobic surfaces. Table 3 shows that the bond strength resulting from the hydrophilic surfaces and the hydrophobic surfaces are very similar when the bonding is performed at or above 400oC.

The reference to Lee teaches a process which one of ordinary skill in the art would recognize as closely related to the Goesele bonding process. Specifically, Lee teaches formation of a refractory layer (e.g. $Si3N4$) upon a base substrate and bonding the layer directly to a glass substrate (see §3.2). Lee continues by teaching that an HF cleaning treatment prior to anodic bonding results in better bonding performance than is observed without such a treatment.

In view of Lee, one of ordinary skill in the art would have found it obvious to subject the bonding surface of the Goesele first substrate to a HF cleaning treatment. Such a process is disclosed by Lee to enhance bond strength between a Pyrex glass substrate and ceramic layers similar to those used by Goesele. Further, where Cozma teaches that the a HF treatment removes surface hydroxyl groups from a substrate, it is the Examiners assessment that performing such a treatment upon the Goesele substrate would reasonably be expected to increase the hydrophobicity of the substrate.

It is further noted that Cozma effectively teaches that for anodic bonding above 400oC, the surface energy of the substrate plays a diminished role in the resultant bond strength from anodic bonding. Such a conclusion is apparently confirmed by the

Applicant wherein it is indicated that; “An effective bond may be formed ***with or without prior surface treatments***”.

Given applicants disclosure that the anodic bond is “effective with or without prior surface treatment”, said surface treatment is understood to produce no unexpected result in the properties of the bond. Regarding the Official policy relating to unexpected results;

> “[A]ny differences between the claimed invention and the prior art may be expected to result in some differences in properties. The issue is whether the properties differ to such an extent that the difference is really unexpected. In re Merck & Co., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986)”

The above cited prior art clearly demonstrates that it was known in the art to pre-treat substrates to render them either hydrophobic or hydrophilic prior to bonding and since and that either treatment results in formation of an effective anodic bond. Further, Applicant appears to admit that the hydrophobic surface treatment provides no unexpected results in the bonding process over processes where the surfaces remain untreated. It is therefore the Examiners assessment that the instant claim limitation wherein the method of claim 1 “further comprises causing the surface of the second material to be hydrophobic” is not construed patentably distinguish the claimed invention over the prior art in view of the ordinary level of skill in the art at the time of the invention.

Claim 13, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goesele (US 5,877,070) and Lee et. al. (Electrochemical Society Proceedings, Volume 97-36; Semiconductor Wafer Bonding: Science, Technology, and Applications IV, (1998) pp.200-204) as applied to claim 1 above in further view of the combined teachings of Wagner (6,550,337), Sarro (Sensors and Actuators A: Physical, 82(1), pp. 210-218, (2000)), Schmidt (Proceedings of the IEEE, 86(6), 1575-1585, (1998)), and Lee (J.Vac. Sci. Technol. B 12(6), 3425-3430, (1994)).

With respect to **Claim 13,** Goesele-Lee fails to set forth a provision wherein a second substrate with elastic modulus greater about 300 gigaPascals is contacted to the surface of the first layer and an anodic bond formed between said first layer and second substrate by application of a voltage there between. However Goesele does explicitly indicate that the disclosed process is applicable to substrates having plural and potentially mixed layers of monocrystalline polycrystalline, and/or amorphous materials (see col. 3, line 65 to col. 4, line 4). Goesele-Lee also fails to explicitly set forth the limitation wherein the first layer is thinned prior to contact with the second substrate.

With respect to Claim 13, Wagner (6,550,337) teaches the fabrication of a MEMS based thin film pressure sensing structure (See Figure 2 Excerpt Below) comprising a pressure sensor die (101), a support structure (102), and a plate or header (103). The immediate reference teaches that the pressure sensor die (101) can be a material other than Si (Column 10, Line 1), that the header can be a ceramic (Column 10, Lines 1-2), and that the support structure (102) is typically silicon or glass (Column 4, Line 50). In this MEMS based structure, the support structure serves to mechanically (Column 5, Line 4) and Electrically (Column 5, Lines 12-17) isolate the Die (101) from the header (103). Further, it is indicated that the die (101) and Support structure (102) can be bonded together in wafer form using an anodic bonding process (Column 4, Lines 60-65).

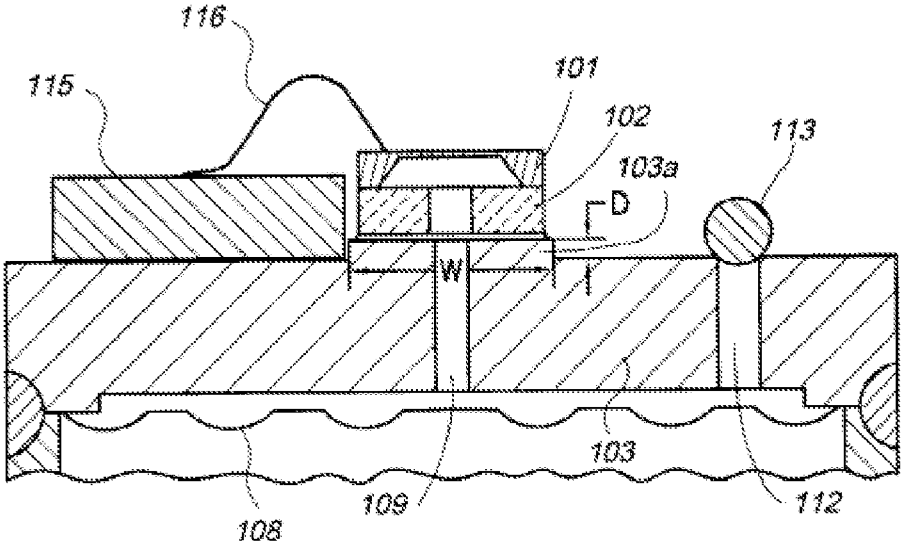

FIG._2A

Sarro (Sensors and Actuators A: Physical, 82(1), pp. 210-218, (2000)) teaches that "silicon carbide is a material that has attracted much attention …particularly due to its wide band gap, its ability to operate at high temperatures, its mechanical strength and its inertness to exposure in corrosive environments" (pg 210, §1). Sarro continues by indicating that polycrystalline silicon carbide films are suitable for high temperature thermistors and pressure sensors (pg 211, §2.2). As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize polycrystalline silicon carbide as the material of construction for both the pressure sensing die (101) and the header (103). This combination would result in a silicon carbide/glass/silicon carbide type sandwich structure. This would have been an obvious substitution for anyone seeking to construct a MEMS based pressure sensor for application in high temperature or chemically corrosive environments.

Schmidt (Proceedings of the IEEE, 86(6), 1575-1585, (1998)) teaches that wafer-level packaging (or wafer bonding) can be a dominant component in the final manufactured cost of a device. "By achieving package function at the wafer level, it is possible to realize tremendous overall savings in cost since this enables the packaging of a multitude of sensors or actuators simultaneously, eliminating costly individual chip-packaging steps" (pg, 1576, § II). Since packaging at the wafer level could yield "tremendous overall savings" in the packaging of MEMS based structures as taught by Schmidt, it would have been obvious to one of ordinary skill in the art at the time of the invention fabricating the SiC/glass/SiC to utilize said wafer level bonding (e.g. anodic bonding) in order to realize these manufacturing savings.

Further, Lee (J.Vac. Sci. Technol. B 12(6), 3425-3430, (1994)) teaches a new multi layer microstructure fabrication approach utilizing sequential anodic bonding processes to build up a laminate type structure. Lee indicates that "this technique can be used in a wide variety of application s such as packaging, micromechanical devices, 3D very large scale integrated (VLSI) and optoelectronic devices" (pg3425, §1). As depicted in the excerpt figure below, the key to this approach is that sequential anodic bonding procedures can be undertaken to build a multilayer structure without affecting any previously formed anodic bond in the structure. It would have been obvious to one of ordinary skill seeking to package a complex MEMS type structure of the type indicated by Wagner and with the financial benefits of wafer level bonding taught by Schmidt to utilize the multilevel anodic bonding process as indicated by Lee.

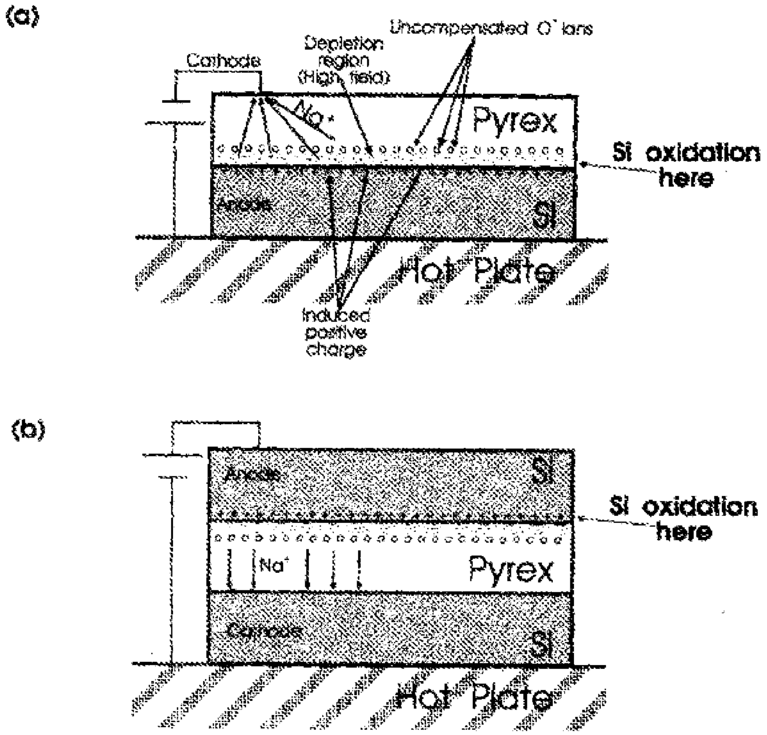

FIG. 4. Schematic illustration of multilayer anodic bonding process.

It would have therefore been obvious to one of ordinary skill in the art building a laminate SiC/glass/SiC type structure of the type indicated by Wagner to combine the teachings set forth above by Sarro, Schmidt, Lee, and Berthold-Fukushi. As a restatement of the afore mentioned key concepts, Lee teaches that multilayer anodic bonding is possible and advantageous for assembly of complex multilayer structures, Goesele-Lee teaches that anodic bonding (wafer level bonding) is possible between glass and silicon carbide, Sarro reveals that silicon carbide would be a beneficial substitution in the MEMS pressure sensor structure as taught by Wagner for application in high temperature or corrosive environments, and Schmidt teaches that wafer level, anodic bonding can be undertaken to achieve significant financial benefit in manufacturing costs for said MEMS device.

The aforementioned combination would therefore read on the immediate claim as providing a third material of silicon carbide which is understood to have an elastic modulus greater than about 300 gigaPascals, contacting the first and third materials, and applying a voltage between the first and third materials to cause an effective anodic bond to form between the first and third materials. In accord with the teachings of Goesele-Lee and Fukushi, it would be obvious to optimize the RMS surface roughness of the third layer to greater than 0.001 micron and less than 0.15 micron.

With respect to **claim 14** and in light of the rejection of Claim 13 above, Schmidt further indicates “wafer thinning” can be utilized to form MEMS based pressure sensors and that such a process results in considerably smaller cavity depth than can be accomplished with bulk micromachined devices. As such, the process of “wafer thinning” is deemed a routine procedure encountered in the fabrication of MEMS based pressure sensor structures. Further, as indicated in the rejection of Claim 13 above, the role of the insulating support structure (102) is to provide mechanical and electrical isolation between the membrane (101) and the header (103). It would be obvious to one of ordinary skill in the art at the time of the invention to utilize the well-established process of wafer thinning to thin the support structure (102) and to optimize the thickness of said support structure to provide the desired level of mechanical and electrical isolation.

Regarding **Claim 15** and in light of the rejection of Claim 14 above, applicant indicates (pg 4, ¶ [0018]) that “the glass layer can be thinned to 10.0 m to provide, for example, a sandwich of a thin glass layer between two anodically bonded polycrystalline substrates”. Since the thickness of said glass layer is understood to produce no unexpected result in the properties of the bond, the immediate claim limitation wherein the method of claim 14 “further comprises causing the first material to have a thickness of less than about 10.0 m” is deemed *prima facie* obvious over prior art.

Response to Arguments

Applicant's arguments with respect to the rejection of claim over Berthold in view of Fukushima have been considered but are moot in view of the new ground(s) of rejection.

Applicants arguments directed against the Goesele reference have been fully considered but are deemed unpersuasive. Specifically Applicant alleges that Goesele is not applicable to polycrystalline materials but is only enabled for the anodic bonding of monocrystalline layers. In direct contrast to Applicants allegations, Goesele explicitly states that "according to the present invention the transfer of the thin layer, which can be a monocrystalline layer or essentially a polycrystalline thin layer or even essentially an amorphous thin layer or combination thereof is performed" (see col. 4, lines 1-3). In view of the at least the instant citation, Applicants arguments purporting that the Goesele process is not applicable to polycrystalline materials is deemed unpersuasive.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON L. LAZORCIK whose telephone number is

(571)272-2217. The examiner can normally be reached on Monday through Friday 8:30 am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jason L Lazorcik/
Primary Examiner, Art Unit 1791